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MINOR STUDIES FROM THE PSYCHOLOGICAL LABORATORY OF VASSAR COLLEGE

XXXIV. A FURTHER STUDY OF FRESHMEN

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In this JOURNAL for January, 1917, a report was made of the results of a questionnaire investigation and of certain tests applied to Vassar Freshmen of the class of 1918. The same questionnaire has been used for succeeding Freshmen classes, and tests have also been made, some of them identical with those used on the Class of 1918, others different. The present paper will give a brief statement of certain results from the classes of 1919 and 1920.

For the class of 1918, correlations by the presence and absence method were calculated from the answers to the questionnaire.

(1) It was found that "a slight negative correlation ($-.21$) appeared between interest in mathematics and fondness for writing." For the class of 1919 this negative correlation was larger ($-.38$), and for the class of 1920 larger still ($-.51$). In both cases the size of this coefficient is due chiefly to the large class of individuals who say they dislike mathematics and like to write. Thus the chances are about even, in both 1919 and 1920, that a person who likes mathematics will like to write (40:38 in 1919, 35:32 in 1920); they are one to three (35:108) in 1919 that a person who likes to write will like mathematics, and one to two and a half (40:99) in the class of 1920. They are almost exactly even for both classes that a person who dislikes writing will like mathematics (42:38 for 1919, 32:32 for 1920). Thus it seems clear that the proportion of students who say they dislike to write but they like mathematics is decidedly greater than the proportion of those who say they like to write and like mathematics.

(2) For 1918, "a slight negative correlation ($-.18$) obtained between enjoyment of poetry and fondness for manual work," according to the questionnaire replies. For 1919, this coefficient is also negative ($-.76$), but for 1920 it is positive (.43), and in both cases it is without significance because the number of those who like both poetry and manual work is so much greater than that of those who dislike both.

(3) As for the class of 1918, so for 1919 and 1920, no correlation was found between interest in science and a tendency to observe one's surroundings.

(4) For 1918, "The highest positive correlation, one really significant, obtained between the claim to accurate verbal memory and the possession of oral fluency in recitation. It was .41." That is, this was the correlation between the numbers of students who in response to the question, "Can you readily remember the exact words of anything heard?" answered "Yes," and those who in response to the question, "Do words come to you readily, or with especial difficulty in an oral recitation?" answered "Readily." This positive correlation was confirmed for 1919 (.54), and for 1920 (.45). The distribution

of cases was as follows. In both 1919 and 1920, of those who claim accurate verbal memory, from two to three times as many say they are fluent in oral recitation as say the contrary. In both 1919 and 1920, the number of those who say they are not fluent in oral recitation and confess to poor verbal memories is three times that of those who are not fluent but have good verbal memories. On the other hand, the ratio of those who admit poor verbal memory but claim fluency in recitation, to those who admit poor verbal memory and lack of fluency, is more nearly unity for both 1919 and 1920 (53:69 for 1919, 67:79 for 1920). And the ratio of those who say they are fluent in recitation and have accurate verbal memories to those who say they are fluent but have poor verbal memories is also not very far from unity (60:53 for 1919, 67:48 for 1920).

(5) No significant correlation appeared between the answers to the questions, "Do you work better in the morning or the evening?" and "Can you readily turn from one task to another."

On the whole, the answers to the questionnaire thus presented to three Freshman classes give ground for the following statements:

A student who reports that she dislikes to write is much more likely to say she is interested in mathematics than is one who reports that she likes to write.

A student who says she has accurate verbal memory is much more likely to say that she is fluent in oral recitation than is a student who admits a poor verbal memory.

A student who says she is not fluent in oral recitation is much more likely to say that her verbal memory is not accurate than is one who claims fluency.

We have also some data to report concerning certain tests.

(1) The test of verbal memory used for the class of 1918 (the Cicero passage, Whipple, volume II, page 209, read aloud to the observer) was used for the classes of 1919 and 1920. The testing was as for 1918 done by about thirty students, members of an advanced class in psychology, but all the testers had carefully prepared written directions and gave no instructions to the subjects except such as were supplied them on the direction papers. The results of this test were as follows: For 1919, average 37.2 words, highest score 79, lowest 12, S. D. 13. For 1920, average 37.1, highest score 84, lowest 12, S. D. 12.5.

The relation between this test and academic performance in the Freshman year was studied by finding the average academic grades of the students who fell in the highest quartile according to the test, and the average for those who fell in the lowest quartile. The highest possible grade for the Freshman year being 90, the average grade for the highest quartile was, in 1919, 58.3; in 1920 74.2. The average grade for the last quartile was in 1919, 42.3, in 1920 51.4. Thus the difference in grades was for 1919 16, for 1920 22.8.

In the autumn of 1917, the beginning of the senior year of the class of 1918, we calculated the average class standings for three years of the members of 1918 who had fallen in the first and last quartiles of this test. The difference was found to be only 21.8 in favor of the first quartile, or about ten per cent of the average standing of the last quartile. This difference was somewhat less absolutely than the corresponding difference in 1918's Freshman year, which was 24; it was of course much less relatively.

At the same time, we determined what per cent of students in the

first and last quartiles respectively had withdrawn from college for any cause whatever. 26.6% of the last quartile had withdrawn; 19% of the first quartile: a difference of 7.6% in favor of the first quartile.

(2) For the Cicero passage as a test of memory for ideas the scores were:

For 1919, average 25.8 ideas, highest score 61, lowest 8, S. D. 10.2. For 1920, average 24.5 ideas; highest 49, lowest 6, S. D. 8.

The difference between average academic grades of the first and last quartiles was, for 1919, 13; for 1920, 17.8.

(3) For the Reading Backwards Test, the scores were:

For 1919, average, 368.2 seconds; quickest score, 135"; longest, 1029"; S. D., 84. For 1920, average, 324.9 seconds; quickest score, 121"; longest, 685"; S. D. 77.

The difference between the average Freshman records for the first and last quartiles was, for 1919, 12.9; for 1920, 16.4.

An examination of three years' academic records for the class of 1918 showed a difference of 22.1 points between first and last quartiles in this class. This was only a few points larger absolutely than the difference between the Freshman records of these two groups, which was 19 points, and of course it is much smaller relatively.

Of the students in the last quartile of the Reading Backwards Test in the class of 1918, 35% withdrew before the beginning of their senior year; of those in the first quartile 19.4% withdrew; a difference of 15.6%.

(4) The Hard Directions Test, which was used with the class of 1918, was reported as giving the smallest difference between the academic grades of the first and last quartiles in the Freshman year. It was not used on 1919 and 1920. Examination of the three years' academic records of 1918 showed that this test was decidedly below either the memory tests or the Reading Backwards Test as a prophet of academic success. The difference between the average grades for three years of students in the first and last quartiles of this test was only nine points. Further, of the students in the first quartile 32.6% withdrew before the beginning of the senior year, while of the last quartile only 26.5% withdrew, a difference of 6.6% in favor of the worst quartile.

(5) A test of suggestibility was given to the Freshmen of the class of 1920; namely, the picture of the Butcher's Shop, with the questions used by Healy and Fernald.

The average number of suggestions resisted out of 10 was 8.9; the highest number of course 10, the lowest 3, the S. D. 1.2. The average academic grade for Freshman year of the first quartile was 58.7; for the lowest or most suggestible quartile it was 61; a difference negligible in amount.

(6) The Freshmen of the class of 1919 were given a free association test, with the first fifty words of the Kent-Rosanoff series, the number of egocentric reactions according to the categories laid down by Wells¹ being counted. There was found to be practically no difference between the academic grades of the quartile showing most egocentric reactions and that showing fewest.

(7) The Thurstone Reasoning Test A was given to the Freshmen of the class of 1920. The scoring was done in terms of the average time for correct criticism of a single argument. The average time

¹*Psychological Review*, volume 18, pages 329-333.

was 29.8 seconds, the quickest time 10.3 seconds, the slowest 81.6 seconds, the S. D. 11.8 seconds. The average Freshman grade of the best quartile in this test was 67; that of the poorest quartile was 51.8: a difference of 15.2.

(8) In the class of 1918, of those in the first quartile in *two or more* tests (21 persons), 15% withdrew before the beginning of senior year. Of those in the last quartile in two or more tests (16 persons), 40% withdrew.

From these results it appears that:

(a) Both the verbal memory test and the Reading Backwards Test are better than the Hard Directions Test as an index of probable academic success. The Hard Directions Test is no index at all.

(b) There is no relation between academic success and suggestibility (as shown in the recall of details of a picture), or tendency to make egocentric reactions in a free association experiment.

(c) The relation between success in Freshman tests and academic success in three years work is decidedly less than that between success in Freshman tests and academic success in the Freshman year. Since this statement refers to groups, that is, to first and last quartiles, rather than to individuals, one reason for the difference is clearly that more of the last quartile than of the first quartile withdrew before completing three years of college work, so that the groups compared at the beginning of senior year are less nearly equal in size and probably more nearly equal in ability.

(d) Failure to get above the lowest quartile in two or more Freshman tests indicates nearly equal chances that the student will withdraw before the beginning of senior year.